Case Report

Bilateral peripheral facial palsy: A rare case report

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Abstract

Peripheral facial palsy (PFP) is an inflammation of the facial nerve, which paralyses the face unilaterally or bilaterally, causing pain and discomfort to the patient. PFP affects the lives of compromised individuals not only due to the loss of essential facial functions (smiling, blinking, talking) but also their emotional state. When the face is paralysed, the lost ability to animate the face can be devastating and is often associated with depression, social isolation, and reduced quality of life. Bilateral involvement is extremely rare and as it occurs in unilateral cases, a thorough clinical and laboratory evaluation must be carried out to determine the etiology of the disease, which can be idiopathic, infectious, neoplastic, traumatic, or iatrogenic. In addition to these, in times of the pandemic, coronavirus disease 2019 (COVID-19) and the vaccine against it should be considered as possible causal factors. Drug therapy and physiotherapy are indicated to recover facial movements. The aim of the present study was to report a case of bilateral peripheral facial palsy due to herpes simplex virus reactivation in a 20-year-old female patient.

Keywords: Bell's palsy, facial palsy, herpes simplex

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INTRODUCTION

Facial nerve paralysis compromises not only essential facial functions but also socialization and emotional well-being.[1] A variety of functional and psychosocial effects can occur, depending on involved anatomic distributions and circumstances of paralysis: smiling, blinking, nasal breathing, taste, lip movements, and affected speech, impairing the patient's quality of life.[2-4] Pregnant women, elderly, diabetics, and immunocompromised patients are part of the group with the highest rate of involvement due to this condition.[5]

Its etiology may be idiopathic (peripheral facial palsy or Bell's palsy (BP)), infectious (Ramsay Hunt syndrome), neoplastic, traumatic, or iatrogenic.[5-8] Peripheral facial paralysis (PFP) is a rare condition of inflammation of the facial nerve, which paralyses the face unilaterally or bilaterally, making it impossible for the patient to perform essential movements, causing pain, tingling, and discomfort.[3] A possible causative factor of PFP is the reactivation of the herpes simplex virus.[9] In times of the pandemic, coronavirus disease 2019 (COVID-19) infection should also be investigated and taken into account in patients with facial paralysis or any suspected Guillain-Barré syndrome.[3,10]

Inflammation of the facial nerve can occur unilaterally (peripherally) or bilaterally, simultaneously or alternately, with recovery on one side, followed by paralysis on the other side.[8] Its bilateral involvement is extremely

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rare, with an incidence of approximately 1 per 5,000,000 people per year.[2,8] In contrast to unilateral facial palsy, bilateral facial palsy presents often as a manifestation of a serious systemic condition; as such, a comprehensive history and physical examination together with appropriate blood work and imaging studies are necessary to establish the correct diagnosis in an expedient fashion.[11] In studies investigating the etiology of bilateral facial paralysis, PFP accounted for one-third of the cases.[4]

History should determine the onset, progression, associated symptoms, and risk factors.[6] Symptoms associated with neoplastic or infectious causes of facial paralysis often progress gradually, relative to the sudden onset characteristic of Bell's palsy.[5]

Determining the cause and time of paralysis is critical for treatment planning.[2,12] Diagnostic blood work is very important and a lumbar puncture can be performed to evaluate cell counts, as well as bacterial or viral content.[13] The use of corticosteroids with or without antiviral therapy is effective in most cases.[14,15] Recovery percentages are related to the severity of the case, ranging from 61% in bilateral peripheral facial paralysis to 94% in peripheral paralysis.[1] In addition to drug therapy, physical therapy follow-up is of paramount importance for the recovery of facial movements.

The aim of this study was to report a rare case of bilateral peripheral facial paralysis, associated with herpes simplex virus reactivation, in a 20-year-old female patient.

CASE REPORT

A 20-year-old female patient sought medical attention in the city of Curitiba/PR Paraná. Her chief complaint was a tingling sensation and dysgeusia in the left half of the tongue and ipsilateral retroauricular pain initiated two days before. In addition, she reported that the day before she had observed asymmetry in the face, and difficulty in smiling and blinking.

On the physical examination, a mild spontaneous ocular opening was observed. The anamnesis revealed her to be a systemically healthy young woman, who reported only a history of anxiety attacks, controlled by antidepressants and sedatives. The patient reported receiving the first dose of the Pfizer vaccine, against COVID-19, about two months before the event. She presented oriented verbal response and motor response to verbal commands.

Physical examination revealed facial asymmetry on the left, compromising the smile and eye closure [Figure 1a-c]. On her neurological examination, she obtained Glasgow 15, reagent pupils, atypical gait, House Brackmann IV on the left (weakness considered moderate to severe, with incomplete eye closure), without sensory deficits. The initial diagnostic hypothesis was peripheral facial paralysis on the left. The use of the drugs acyclovir, prednisone, regencel, and eye plug for corneal protection was prescribed. After medical guidance, she was discharged and referred for facial physiotherapy.

After seven days, the patient returned to the hospital with a slight positive evolution of left PFP [Figure 2a-c] and reported feeling the same symptoms of the onset of paralysis, such as dysgeusia, tingling, and right paraesthesia.

After a few hours, the right side was fully compromised with a higher degree of paralysis [Figure 3a-c].

Thus, its diagnostic hypothesis was inconclusive, PFP was questioned and the suspicion of Guillain-Barré Syndrome was raised. The procedure taken was to maintain physical therapy and medications, perform contrasted magnetic resonance imaging (MRI) of the skull, and check the cerebrospinal fluid and blood tests. Hospitalisation or early return was considered in case of alterations in the tests.

The lumbar puncture showed no alterations and the magnetic resonance imaging of the skull pointed to an inflammatory/infectious process (facial neuritis) of the intracanalicular and labyrinthine segments of the facial nerves, more evidently on the right. The VII and VIII cranial pairs presented normal thickness and the other cranial pairs without particularities. In the blood test, she presented positive Immunoglobulin M (IgM) for Herpes Simplex. The final diagnosis was Peripheral Facial Palsy due to herpes simplex virus reactivation.

In the physiotherapeutic treatment, the first approach was the performance of facial massages and application of bandages (tapings) [Figure 4] for stimulation of facial muscles, and in the following session, treatment with acupuncture and electroshock was performed, to evaluate and stimulate muscle contracture. It was recommended that the patient perform facial mimicry exercises at home.

The patient showed significant improvement after physiotherapy sessions, especially with acupuncture and electroshock. After eight sessions, in about four weeks, the movements of the face were completely recovered [Figure 5a-c].

Figure 1: (a) Left facial asymmetry at rest. (b) The asymmetry of the smile. (c) Incomplete ocular closure

Figure 2: (a) Facial asymmetry at rest with slight positive evolution. (b) Asymmetric smile with slight positive evolution. (c) Compromised eye closure, with mild positive evolution

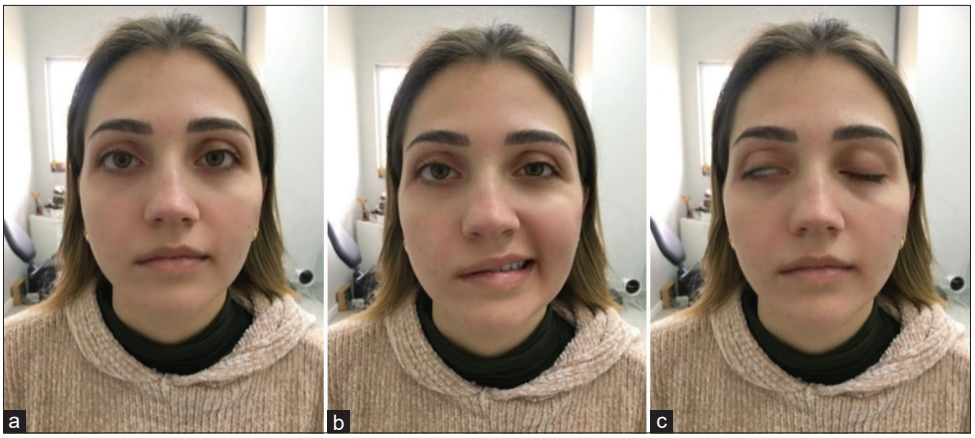

Figure 3: (a) Facial asymmetry at rest on the right side. (b) Smile compromise on the right side. (c) Incomplete eye closure on the right side

DISCUSSION

Although facial palsy does not affect patient longevity, it causes facial asymmetry and loss of function, resulting in mental and emotional stress.[8] The side effects caused by facial nerve injury compromise not only essential facial functions but also social interactions and the psychological well-being of the patient.[14,15] The main concern in upper facial paralysis is impaired eye closure, which can predispose the eye to corneal exposure and threaten vision; lower facial paralysis not only affects the ability to smile but can also impair speech and the ability to eat.[4] Besides these symptoms, our patient also presented paraesthesia and pain in facial muscles.

Anamnesis in these cases should include the characterisation of symptoms, time of onset, taste alteration, investigation of associated symptoms such as diplopia, facial tingling, otologic symptoms, and previous cases of paralysis. Patient history and results of the examination should include recent illnesses and rashes such as herpes simplex virus lesions once one of the hypotheses about the etiology of PFP is the reactivation of herpes simplex virus (HSV) in the geniculate ganglion.[13] Besides HSV, cytomegalovirus, Epstein-Barr virus, human immunodeficiency virus, human T lymphotropic virus, and herpes zoster virus are also part of the main diagnostic hypotheses.[2] Physical examination should evaluate all systems, with a special focus on neurological.[2,7]

In situations of facial paralysis progressing for 72 hours after onset or presenting bilateral involvement, as observed in the present case, the diagnosis of PFP should be questioned and tumour causes need to be investigated.[1] Generally, bilateral involvement is a finding in some severe systemic diseases.[2] In these cases, other etiologies such as Lyme disease, Guillain-Barré syndrome, leukemia, trauma, and a possible adverse reaction to the COVID-19 vaccine should be considered.[3,7,10]

Figure 4: In the physiotherapeutic treatment, the first approach was the performance of facial massages and the application of bandages (tapings)

Cases of bilateral peripheral facial paralysis after coronavirus infection have been reported.[3,10] In one case, the patient also tested positive for recent Epstein-Barr virus (EBV) contamination. Symptoms included fever, odynophagia, cough, headache, myalgia, nausea, and vomiting. In the present case, the symptoms presented were different and the polymerase chain reaction (PCR) test for severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) and serology for EBV were negative. Although the probability of facial paralysis as an adverse reaction to the COVID-19 vaccine is still low, it should be considered.[3] Some authors state that once the patient tested positive for other viruses, it cannot be ruled out that reactivation of one of these by COVID-19 rather than COVID-19 itself was the underlying disease mechanism.[10]

Complementary tests such as contrast MRI, lumbar puncture, and blood tests are essential to clarify the origin of the disease.[2] Contrast magnetic resonance imaging should be performed to study the course of the facial nerve, including the parotid gland, to complete the positive diagnosis for PFP and rule out any tumour etiology.[1] One study evaluated the clinical significance of hematological findings in patients with acute peripheral facial palsy and the authors found that inflammatory markers do not predict all BP outcomes once its pathogenesis is not triggered exclusively by inflammation, and several etiologies could be in play.[12]

Patients with paralysis of autoimmune causes may improve after steroid use, as well as those of viral source, with associated antivirals. In addition to drug therapy, specialised

Figure 5: (a-c) Complete recovery of the facial movements after eight physiotherapy sessions

physiotherapy is recommended for all patients diagnosed with PFP, with the purpose of stimulating and recovering facial movements.[4] In the present case, the same therapeutic approaches were followed and, in addition to physiotherapy, antiviral (acyclovir), corticosteroid (prednisone), and ocular medications for the protection of the cornea were prescribed, along with the use of eye plugs.

Most patients with BP begin to recover within four weeks after the onset of the disease; others, however, present a period of one to six months.[8] In our case, in one week the patient evolved from a left PFP to a right PFP, with simultaneous bilateral involvement for seven days, recovering from the left side and remaining with the right side paralysed for another 14 days; full recovery occurred after one month.

CONCLUSION

Bilateral PFP is an extremely rare condition that requires thorough clinical and laboratory evaluation to determine its etiology. HS virus reactivation is the most common cause, however, tumours and systemic diseases should be investigated. In times of pandemic, the hypothesis of a possible reaction to the vaccine should also be considered. An accurate diagnosis, along with early drug therapy and physical therapy, is critical to a favourable prognosis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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